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UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL ELECTRIFICATION ADMINISTRATION
WASHINGTON 25, D. C.

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TELEPHONE ENGINEERING MEMORANDUM 529p2
SUBJECT: Hazards of Electric Blasting Caps in the Vicinity of
Radio Transmitters

Considerable attention has been focused recently upon the hazards of (1) transporting electric blasting caps in vehicles equipped with two-way radio, (2) transmitting with mobile equipment in the vicinity of electric blasting operations, and (3) carrying out such operations near broadcasting stations, either commercial or the permanently located transmitters in a mobile two-way radio system.

A radio transmitting antenna with a physical length equal to one-half electrical wave length has a high current flow at its center. If there is a wire of a half-wave length or some odd integral multiple of it within close range of a transmitting antenna, high currents can be induced into its center. Thus, a blasting cap in the center of two equal lengths of wire (or under certain conditions not located at the center of the lengths of wire) could have enough current induced into it to cause the cap to explode. Since the length of most mobile radio antennas is one-fourth wave length, the most critical length of wires connected to a blasting cap would be when the combined length of both wires is twice the length of the antenna or any odd integral multiple of that length.

Based upon information received from several manufacturers, the following recommendations are made with reference to the use of electric blasting caps:

1. The caps should be carried in a metal container lined with wood or sponge rubber. The metal effectively shields the caps against radio induced currents. The container would give additional protection if it were grounded to the vehicle.

2. No transmitting should be done while caps are being put into or taken out of the container or while the caps are within a range of 100 feet of the antenna.
3. No transmitting should be done within 100 feet of an electrical blasting operation.
4. No electric blasting should be done within one mile of a commercial or other permanently located broadcasting station. If it is necessary to do such blasting within that range, it is recommended that blasts be detonated with Primacord and regular cap and fuse.

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